09/991,001

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	513	(sensor or sensing) adj particle$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/02 14:50
S2	5604	multiple$3 same analyte$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/02 14:51
S3	1602	multiple$3 adj analyte$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/02 14:51
S4	26	S1 and S3	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/02 15:50
S5	23	S4 and fluorescen$2	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/02 15:50
S6	19	S5 and ion	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/02 15:52
S7	2	("5747349").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 16:18
S8	2	("5981180").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 15:55

S9	2	("6063637").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 15:55
S10	2	("6057107").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 15:56
S11	2	("0449052").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 15:57
S12	2	("4499052").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 16:04
S13	2	("6165769").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 16:04
S14	2	("5503770").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 16:05
S15	2	("5763238").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 16:06
S16	3	("4302166").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 16:06
S17	2	("4162282").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 16:06
S18	0	("l10and(saccharideorglucoseorgalactose)").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2005/06/02 16:19

S19	18	S6 and (saccharide or glucose or galactose or carbodydrate)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/02 16:20
S20	14	S19 and (antigenS1 or antibod$3)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/02 16:20
S21	14	S20 and metal	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/02 16:22

09/991,001

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	1447	(sensor or reporter or sensitive) adj (bead$1 or particle$1)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/07 11:33
L2	295	l1 and fluorescen$2	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/07 11:34
L3	266	l2 and (ion$1 or saccharide$1 or metal or protein or antibody or antigen or nucleic or DNA or metabolite)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/07 11:37
L4	146	l3 and analyte	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/07 11:37
L5	46	l4 and multiple adj analyte$1	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2005/06/07 11:38

09/991,001

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=> s l10 and fluorescen?
397243 FLUORESCEN?
L11 30 L10 AND FLUORESCEN?

=> dup rem l6 l11
PROCESSING COMPLETED FOR L6
PROCESSING COMPLETED FOR L11
L12 40 DUP REM L6 L11 (0 DUPLICATES REMOVED)
ANSWERS '1-40' FROM FILE CAPLUS

=> d l12 ibib abs hitstr tot
THE ESTIMATED COST FOR THIS REQUEST IS 197.60 U.S. DOLLARS
DO YOU WANT TO CONTINUE WITH THIS REQUEST? (Y)/N:y

L12 ANSWER 1 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:186112 CAPLUS
TITLE: Microfluidic multi-**analyte sensors** and electroosmotic pumps
AUTHOR(S): Piyasena, Menake E.; Fenton, Kyle; Buranda, Tione; Petsev, Dimiter N.; Wu, Yang; Sklar, Larry A.; Lopez, Gabriel P.
CORPORATE SOURCE: Department of Chemistry, University of New Mexico, Albuquerque, NM, 87131, USA
SOURCE: Abstracts of Papers, 229th ACS National Meeting, San Diego, CA, United States, March 13-17, 2005 (2005), ANYL-296. American Chemical Society: Washington, D. C.
CODEN: 69GQMP
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB A miniaturized immunoassay system based on beads in poly(dimethylsiloxane) microchannels for analyzing **multiple analytes** has been developed. The method involves real-time detection of soluble mols. binding to receptor-bearing microspheres, sequested in affinity column format inside a microfluidic channel. Identification of **analytes** occurs via **fluorescence** resonance energy transfer. The multi-**analyte** model system comprised discrete segments of microspheres that bear distinct receptors for the simultaneous and real time detection of diverse **analytes**. Proof of principal **analytes** includes FLAGTM and carcinoembryonic **antigen** (CEA) detected at physiol. relevant concentration levels. A potential limitation to the implementation of affinity microcolumns in compact multi-**analyte sensors** is the high pressure drop associated with their highly porous nature. We demonstrate the packed -bead structure that forms the microcolumn can itself be used to efficiently pump fluid via electroosmosis. We present theor. and exptl. anal. on optimizing of electroosmotic pumping on these columns based on an anal. model derived from the cell model originally developed by J. Happel for permeability studies in porous media (AIChE J. 1958, 4, 197-201). The anal. provides useful guidelines for designing pumps with desired properties and performance. This approach will enable us to build miniaturized biosensors with integrated micro devices such as pumps, mixers and detectors with the ability to detect **multiple analytes** rapidly and simultaneously.

L12 ANSWER 2 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:169701 CAPLUS
DOCUMENT NUMBER: 142:402971

TITLE: Imaging fiber microarray **fluorescent ion sensors** based on bulk optode microspheres
AUTHOR(S): Wygladacz, Katarzyna; Bakker, Eric
CORPORATE SOURCE: Department of Chemistry and Biochemistry, Auburn University, Auburn, AL, 36849, USA
SOURCE: Analytica Chimica Acta (2005), 532(1), 61-69
CODEN: ACACAM; ISSN: 0003-2670
PUBLISHER: Elsevier B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Optical imaging fibers with micrometer-sized wells were used as a sensing platform for the development of microarray optical **ion sensors** based on selective bulk extraction principles established earlier for optodes. Uniform 10 μm sized microspheres based on plasticized poly(vinyl chloride) containing various combinations of ionophores, fluoroionophores and lipophilic **ion**-exchangers were prepared for the detection of sodium, potassium, calcium and chloride, and deposited onto the wells of etched fiber bundles. Specifically, sodium sensing particles were based on tert-butylcalix[4]arene tetraacetic acid tetraethylester, potassium particles on 2-dodecyl-2-methyl-1,3-propanediyl bis[N-[5'-nitro(benzo-15-crown-5)-4'-yl]carbamate] (BME-44), calcium particles on an acrylic derivative of ETH 129 (AU-1) covalently attached to a methacrylic polymer, and chloride particles based on the anticrown ionophore [9]mercuracarborand-3 (MC-3). The **fluorescence** emission characteristics of individual microspheres were observed from the backside of the fibers and selectively and rapidly change as a function of the sample composition The optical characteristics of the particles are comparable to that of corresponding thin optode films and particles deposited onto microscope glass slides. The measuring ranges (logarithmic molar concns.) at pH 7.0 were found as -3 to 0 for sodium, -3.5 to -0.5 for potassium, -7 to -2 for calcium, and -5 to 0.5 for chloride. Selectivities were determined over other common electrolytes and are sufficient for physiol. applications. The simultaneous deposition of sodium and chloride sensing particles was successfully performed, demonstrating that such microarray **sensors** are capable of simultaneously sensing **multiple analytes**. This technol. is compatible with other microsphere-based **fluorescent** sensing principles, forming a promising total anal. platform for a variety of applications.

REFERENCE COUNT: 45 THERE ARE 45 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 3 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2004:786657 CAPLUS
DOCUMENT NUMBER: 141:421915
TITLE: Near-Simultaneous and Real-Time Detection of **Multiple Analytes** in Affinity Microcolumns
AUTHOR(S): Piyasena, Menake E.; Buranda, Tione; Wu, Yang; Huang, Jinman; Sklar, Larry A.; Lopez, Gabriel P.
CORPORATE SOURCE: Cancer Center and Department of Pathology, University of New Mexico School of Medicine, Albuquerque, NM, 87131, USA
SOURCE: Analytical Chemistry (2004), 76(21), 6266-6273
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A miniaturized immunoassay system based on beads in poly(dimethylsiloxane) microchannels for analyzing **multiple analytes** has been developed. The method involves real-time detection of soluble mols. binding to receptor-bearing microspheres, sequestered in affinity column format inside a microfluidic channel. Identification and quantitation of

analytes occurs via direct **fluorescence** measurements or **fluorescence** resonance energy transfer. A preliminary account of this work based on single-**analyte** format has been published in this journal (Buranda, T.; Huang, J.; Perez-Luna, V. H.; Schreyer, B.; Sklar, L. A.; Lopez, G. P. Anal. Chemical 2002, 74, 1149-1156). We have extended the work to a multianalyte model system composed of discrete segments of beads that bear distinct receptors. Near-simultaneous and real-time detection of diverse **analytes** is demonstrated. The importance of this work is established in the exploration of important factors related to the design, assessment, and utility of affinity microcolumn **sensors**. First, beads derivatized with surface chemical suitable for the attachment of **fluorescently** labeled biomols. of interest are prepared and characterized in terms of functionality and receptor site densities by flow cytometry. Second, calibrated beads are incorporated in microfluidic channels. The anal. device that emerges replicates the basic elements of affinity chromatog. with the advantages of microscale and real-time direct measurement of bound **analyte** on beads rather than the indirect determination from eluted sample typical of affinity chromatog. In addition, the two-compartment anal. of the assay data as demonstrated in single-**analyte** columns provides a template upon which the dynamics of **multiple-analyte** assays can be characterized using existing theor. models and be tested exptl. The assay can potentially detect subfemtomole quantities of **protein** with high signal-to-noise ratio and a large dynamic range spanning nearly 4 orders of magnitude in **analyte** concentration in microliter to submicroliter vols. of **analyte** fluid. The approach has the potential to be generalized to a host of bioaffinity assay methods including anal. of **protein** complexes (e.g., biomol. indicators of deseases). Proof-of-principle **analytes** include FLAG peptide and carcinoembryonic **antigen** detected at physiol. relevant concentration levels.

REFERENCE COUNT: 73 THERE ARE 73 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 4 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2004:655388 CAPLUS

TITLE: Microfabricated optical biosensors for in situ bioreactor monitoring

AUTHOR(S): Zguris, Jeanna C.; Pishko, Michael V.

CORPORATE SOURCE: Department of Chemical Engineering, The Pennsylvania State University, University Park, PA, 16802, USA

SOURCE: Abstracts of Papers, 228th ACS National Meeting, Philadelphia, PA, United States, August 22-26, 2004 (2004), ANYL-035. American Chemical Society: Washington, D. C.
CODEN: 69FTZ8

DOCUMENT TYPE: Conference; Meeting Abstract

LANGUAGE: English

AB Our research is focused on developing multianalyte sensing technol. to continuously and noninvasively monitor key cell culture media components in the bulk (using glucose, oxygen, lactate, pH, NO, and interleukin-2 as model **analytes**) within bioreactors. Specifically, we are immobilizing **analyte** sensitive fluorophores and fluorophore-labeled biorecognition mols. (**antibodies**, lectins) within novel poly(ethylene) glycol based gel materials that are **analyte** permeable, non-fouling, maintain **protein** conformation and thus biol. function. Furthermore, these gels can be micropatterned in a **sensor** array via photolithog. The gels are designed to allow mass transfer of the **analyte** from the surrounding media into the gel where it can interact with an **analyte**-sensitive fluorophore or bind to the recognition mols. Nitric oxide, oxygen and pH are the **analytes** that will be

discussed, were we are developing hydrogel-based **fluorescent sensors** with **analyte**-specific fluorophores. We have patterned PEG hydrogels encapsulating these sensing chemistries using conventional UV initiated photolithog. to create multianalyte **sensor** arrays on the micrometer scale. In order to successfully monitor cell response to and control cell growth, we need optical imaging tools for the measurement of **multiple analytes** within a bioreactor. This method monitors cell growth and a controlled environment without the need for fluid withdrawal thereby avoiding the potential for cell culture contamination.

L12 ANSWER 5 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:58344 CAPLUS
DOCUMENT NUMBER: 138:103244
TITLE: Optical sensor containing particles for in situ measurement of analytes
INVENTOR(S): Petersson, Bo; Kristensen, Jesper
PATENT ASSIGNEE(S): Torsana Diabetes Diagnostics A/S, Den.
SOURCE: PCT Int. Appl., 33 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003006992	A1	20030123	WO 2002-EP7108	20020627
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
CA 2453430	AA	20030123	CA 2002-2453430	20020627
EP 1405075	A1	20040407	EP 2002-764601	20020627
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004534255	T2	20041111	JP 2003-512709	20020627
NZ 530928	A	20050225	NZ 2002-530928	20020627
US 2004199062	A1	20041007	US 2004-483426	20040112
PRIORITY APPLN. INFO.:			GB 2001-16853 A	20010710
			WO 2002-EP7108 W	20020627

AB The invention relates to a sensor for the in vivo measurement of an analyte, comprising a plurality of particles of suitable size such that when implanted in the body of a mammal the particles can be ingested by macrophages and transported away from the site of implantation, each particle containing the components of an assay having a readout which is an optical signal detectable transdermally by external optical means, and either each particles being contained within a biodegradable material preventing ingestion by the macrophages, or each particle being non-biodegradable. The invention relates to a process for the detection of an analyte using such a sensor, comprising implantation of the sensor into the skin of a mammal, transdermal detection of analyte using external optical means, degradation of the biodegradable material, ingestion of the particles by macrophages, and removal of the particles from the site of implantation by macrophages.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 6 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:707848 CAPLUS
DOCUMENT NUMBER: 139:225761
TITLE: Method for remote detection of trace contaminants
INVENTOR(S): Simonson, Robert J.; Hance, Bradley G.
PATENT ASSIGNEE(S): Sandia Corporation, USA
SOURCE: U.S., 12 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6617591	B1	20030909	US 2001-4921	20011203
PRIORITY APPLN. INFO.:			US 2001-4921	20011203

AB A method for remote detection of trace contaminants in a target area comprises applying **sensor particles** that preconc. the trace contaminant to the target area and detecting the contaminant-sensitive **fluorescence** from the **sensor particles**. The **sensor particles** can have contaminant-sensitive and contaminant-insensitive **fluorescent** compds. to enable the determination of the amount of trace contaminant present in the target are by relative comparison of the emission of the **fluorescent** compds. by a local or remote **fluorescence** detector. The method can be used to remotely detect buried minefields.
REFERENCE COUNT: 11 THERE ARE 11 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 7 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:913324 CAPLUS
DOCUMENT NUMBER: 139:373835
TITLE: Stochastic sensing through covalent interactions
INVENTOR(S): Hagan, Bayley; Shin, Seong-Ho; Luchian, Tudor; Cheley, Stephen
PATENT ASSIGNEE(S): The Texas A & M University System, USA
SOURCE: PCT Int. Appl., 53 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003095669	A1	20031120	WO 2003-US14797	20030509
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2003215881	A1	20031120	US 2003-434897	20030509
EP 1504114	A1	20050209	EP 2003-738910	20030509
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				

PRIORITY APPLN. INFO.: US 2002-379527P P 20020510
US 2003-450930P P 20030228
WO 2003-US14797 W 20030509

AB A system and method for stochastic sensing in which the **analyte** covalently bonds to the **sensor** element or an adaptor element. If such bonding is irreversible, the bond may be broken by a chemical reagent. The **sensor** element may be a **protein**, such as the engineered PSH type or Staph α-hemolysin (αHL) **protein** pore. The **analyte** may be any reactive **analyte**, including chemical weapons, environmental toxins and pharmaceuticals. The **analyte** covalently bonds to the **sensor** element to produce a detectable signal. Possible signals include change in elec. current, change in force, and change in **fluorescence**. Detection of the signal allows identification of the **analyte** and determination of its concentration in a sample solution **Multiple analytes** present in the same solution may be detected.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 8 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2003:376265 CAPLUS
DOCUMENT NUMBER: 138:350804
TITLE: Method and apparatus for multiplex flow cytometry analysis of diverse mixed **analytes** from bodily fluid samples
INVENTOR(S): Bell, Michael L.; McNeal, Jack D.
PATENT ASSIGNEE(S): USA
SOURCE: U.S. Pat. Appl. Publ., 19 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003092008	A1	20030515	US 2001-991001	20011114
WO 2003042698	A1	20030522	WO 2002-US34196	20021025
W: JP				
RW: AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR				
EP 1444518	A1	20040811	EP 2002-784281	20021025
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR, BG, CZ, EE, SK				
JP 2005509858	T2	20050414	JP 2003-544480	20021025

PRIORITY APPLN. INFO.: US 2001-991001 A 20011114
WO 2002-US34196 W 20021025

AB This invention relates to a reagent mixture, as well as to a method and apparatus, for carrying out simultaneous, automated anal. of **multiple analytes** in a test sample, particularly a bodily fluid. The invention is especially relevant to the field of general clin. chemical, but may find application in other fields of use.

L12 ANSWER 9 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:374580 CAPLUS
TITLE: Simultaneous quantification of 22 cytokine/chemokines in mouse serum or plasma using xMAP technology
AUTHOR(S): Ji, S.; Mistry, J.; Ryan, R.; Gingerich, R.
CORPORATE SOURCE: LINCO Research, Inc., St. Charles, MO, USA
SOURCE: International Cytokine Society, Proceedings of the Annual Meeting, Dublin, Ireland, Sept. 20-24, 2003

(2003), 123-127. Editor(s): O'Neill, Luke. Monduzzi Editore: Bologna, Italy.
CODEN: 69GUZG; ISBN: 88-7587-014-4
DOCUMENT TYPE: Conference; (computer optical disk)
LANGUAGE: English

AB Here we report the development of a multiplexed immunoassay system for simultaneously quantifying 22 different mouse cytokines and chemokines (including G-CSF, GM-CSF, IFNγ, IL-1α, IL-1β, IL-2, IL-4, IL-5, IL-6, IL-7, IL-9, IL-10, IL-12 (p70), IL-13, IL-15, IL-17, IP-10, KC, MCP-1, MIP-1α, RANTES, and TNFα) in a single sample. The technol. includes capture of **analytes** by a mixture of specific **antibody**-immobilized microparticles, which are differentially dyed with two fluorophores. The captured **analytes** are detected by a cocktail of detection **antibodies**. Following binding of a **fluorescent**-labeled **reporter** mol., the signal is quantified by a Luminex100 reader. Each **antibody** pair used for individual **analyte** is highly specific, with no or negligible cross-reactivities to other cytokines or chemokines within the panel. The standard curves range from 3.2 to 10,000 pg/mL. The sensitivities for the assays are between < 1 to 20 pg/mL in serum matrix. The assay robustness is demonstrated, in general, by excellent precisions (interassay CV = 10-15%; infra-assay CV = 5-10%), linearity of dilution (100 ± 30%), and accuracy (80 -100%) in serum matrix. Total assay time is 2-4 h for serum-free samples or overnight for serum or plasma samples. The availability of this sensitive, rapid, and robust method for simultaneous measurement of **multiple analytes** provides a powerful yet economic tool for both screening purpose or for accurate quantification of mouse cytokines and chemokines.

L12 ANSWER 10 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2005:374579 CAPLUS
TITLE: Simultaneous quantification of 14 cytokines/chemokines in rat serum or plasma using xMAP technology
AUTHOR(S): Ji, S.; Ryan, R.; Mistry, J.
CORPORATE SOURCE: LINCO Research, Inc., St.Charles, MO, USA
SOURCE: International Cytokine Society, Proceedings of the Annual Meeting, Dublin, Ireland, Sept. 20-24, 2003 (2003), 117-121. Editor(s): O'Neill, Luke. Monduzzi Editore: Bologna, Italy.
CODEN: 69GUZG; ISBN: 88-7587-014-4
DOCUMENT TYPE: Conference; (computer optical disk)
LANGUAGE: English

AB We hereby report the development of a multiplexed immunoassay system based on the xMAP technol. for simultaneous quantification of 14 different rat cytokines and chemokines (GMCSF, GRO/KC, IFNγ, IL-1α, IL-1α, IL-2, IL-4, IL-5, IL-6, IL-10, IL-12p70, IL-18, MCP-1, and TNFα) in a single sample. The methodol. includes specific capture of **analytes** in samples by a mixture of **antibody** -immobilized microspheres differentially dyed with two fluorophores. The captured **analytes** are detected by a cocktail of biotinylated **antibodies**. Following binding of a **fluorescent**-labeled **reporter** mol., the signal is quantified by a Luminex 100 reader. Each **antibody** pair used for individual **analytes** is highly specific, with no or negligible cross-reactivities to other cytokines or chemokines within the panel. The standard curves for all **analytes** range from 6.4 to 20,000 pg/mL. The overall sensitivities are between <1 to 20 pg/mL in serum matrix. The assay robustness is demonstrated in general by a CV of ≤ 15% for inter-assay precision and a CV of ≤ 10% for infra-assay precision, by an average recovery of 100 ± 20% for linearity of dilution, and by an accuracy of 100 ± 10% in serum matrix. Total assay time is 2-4 h for serum-free samples or overnight for serum or plasma samples. This simple, sensitive, accurate, and reproducible method for simultaneous measurement

of **multiple analytes** is an economic and powerful tool for both target screening and accurate quantification of cytokines and chemokines in samples of rat origin.

L12 ANSWER 11 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:368747 CAPLUS
DOCUMENT NUMBER: 136:352271
TITLE: **Fluorescence** and FRET based assays for biomolecules on beads
INVENTOR(S): Buranda, Tione; Huang, Jinman; Perez-Luna, Victor H.; Lopez, Gabriel P.; Simons, Peter; Sklar, Larry A.
PATENT ASSIGNEE(S): Science & Technology Corporation UNM, USA
SOURCE: PCT Int. Appl., 71 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2002039083	A2	20020516	WO 2001-US42983		20011106
WO 2002039083	A3	20020711			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM					
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
AU 2002030419	A5	20020521	AU 2002-30419		20011106
US 2002081617	A1	20020627	US 2001-985873		20011106
PRIORITY APPLN. INFO.:			US 2000-246564P	P	20001108
			WO 2001-US42983	W	20011106

AB The invention concerns a sensing device comprising: a vessel; a plurality of **sensor beads** located within the vessel to form interstitial spaces therethrough; and a plurality of biomols. bound to at least at portion of the plurality of beads, each of the biomols. having a **fluorescent** tag. The invention also provides a method for detecting the binding of two biomols. comprising the following steps: providing a plurality of first biomols., each of the first biomols. having a first **fluorescent** tag, each of the first biomols. being bound to a resp. substrate of a plurality of substrate; providing a plurality of second biomols., each of the second biomols. having a second **fluorescent** tag, binding at least portion of the second biomols. to at least a portion of the first biomols. to form complexes, wherein the plurality of first biomols. and the plurality of second biomols. prior to the binding step have a pre-complexing total **fluorescence** and wherein the complexes and free second biomols. after the binding step have a post-complexing total **fluorescence**; and detecting any difference between the pre-complexing total **fluorescence** and the post-complexing total **fluorescence**. A sensing device comprising a suspension of a plurality of **sensor beads**; and a plurality of biomols. bound to at least a portion of the plurality of beads, each of the biomols. having a **fluorescent** tag is also provided. Diagrams describing the apparatus assembly and operation are given.

L12 ANSWER 12 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:172431 CAPLUS
DOCUMENT NUMBER: 136:196554
TITLE: Particle or cell analyzer and method

INVENTOR(S): Goix, Philippe J.; Lingane, Paul J.; Phi-Wilson, Janette T.
PATENT ASSIGNEE(S): Guava Technologies, Inc., USA
SOURCE: U.S. Pat. Appl. Publ., 17 pp.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002028434	A1	20020307	US 2001-844080	20010426
WO 2002021102	A2	20020314	WO 2001-US27509	20010905
WO 2002021102	A3	20030612		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2001088750	A5	20020322	AU 2001-88750	20010905
EP 1334346	A2	20030813	EP 2001-968506	20010905
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
JP 2004520569	T2	20040708	JP 2002-525470	20010905
US 2004005635	A1	20040108	US 2003-410230	20030408

PRIORITY APPLN. INFO.:

US 2000-230380P	P	20000906
US 2001-844080	A	20010426
WO 2001-US27509	W	20010905

AB A particle analyzer in which tagged particles to be analyzed are drawn through a suspended capillary tube where a predetd. volume in the capillary tube is illuminated. The illumination scattered by said particles is detected by a detector to count all particles. The **fluorescent** illumination emitted by tagged particles is detected and the output signals from the **fluorescent** detectors and scatter detector are processed to provide an anal. of the particles.

L12 ANSWER 13 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:185653 CAPLUS
DOCUMENT NUMBER: 136:228256
TITLE: Broad spectrum bio-detection of nerve agents, organophosphates, and other chemical warfare agents
INVENTOR(S): Harmon, H. James
PATENT ASSIGNEE(S): The Board of Regents for Oklahoma State University, USA
SOURCE: U.S. Pat. Appl. Publ., 22 pp., Cont.-in-part of U.S. Ser. No. 487,559.
CODEN: USXXCO
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2002031843	A1	20020314	US 2001-910226	20010720
US 6821738	B2	20041123		

PRIORITY APPLN. INFO.:

US 1999-116504P	P	19990120

US 2000-487559 A2 20000119

AB The instant invention pertains generally to a method and apparatus for rapidly detecting nerve agents, organophosphates, and other chemical warfare agents. A **sensor** has been developed that can be used to rapidly detect **multiple analytes** such as organic compds. **Analytes** can be detected by monitoring changes in the optical properties of the absorbance and/or **fluorescence** spectra of highly colored heterocyclic compds. such as porphyrins or related compds. such as phthalocyanines. The result is a real-time monitor that is suitable for use in situations where encounter with chemical warfare agents is possible.

REFERENCE COUNT: 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 14 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:186026 CAPLUS
DOCUMENT NUMBER: 134:219381
TITLE: Minimally invasive methods for measuring analytes in vivo
INVENTOR(S): Bell, Michael L.; McNeal, Jack D.
PATENT ASSIGNEE(S): Beckman Coulter, Inc., USA
SOURCE: PCT Int. Appl., 21 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2001018543	A1	20010315	WO 2000-US24438	20000906
W: JP				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
US 6366793	B1	20020402	US 1999-393738	19990910
EP 1129353	A1	20010905	EP 2000-959941	20000906
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2003508186	T2	20030304	JP 2001-522081	20000906

PRIORITY APPLN. INFO.: US 1999-393738 A 19990910
WO 2000-US24438 W 20000906

AB Minimally invasive methods for measuring an analyte, such as glucose, contained in the interstitial fluid of a body are provided. The methods include the steps of: (a) providing at least one **sensor particle** capable of generating a detectable analyte signal in responding to the analyte concentration of the body, (b) placing the **sensor particle** into the skin of the body for allowing the **sensor particle** to be in contact with the interstitial fluid of the body to generate the detectable analyte signal, (c) detecting the generated analyte signal, and (d) determining the concentration of the analyte contained in the interstitial fluid. The **sensor particles** may be made to be responsive to an analyte such as glucose concentration contained in a body fluid by including a photo-induced electron transfer receptor specific for the analyte in the **sensor particle**.

REFERENCE COUNT: 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 15 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:654763 CAPLUS
DOCUMENT NUMBER: 135:189398
TITLE: Optical **sensor** for sensing **multiple analytes**

INVENTOR(S): Mauze, Ganapati R.; Curry, Bo
PATENT ASSIGNEE(S): Agilent Technologies Inc., USA
SOURCE: Eur. Pat. Appl., 26 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1130382	A1	20010905	EP 2001-301872	20010301
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
US 6379969	B1	20020430	US 2000-517259	20000302
PRIORITY APPLN. INFO.:			US 2000-517259 A	20000302

AB A device for analyzing simultaneously **multiple analytes** in a fluid of unknown composition The device includes a plurality of **sensors**, a light source for providing light to shine on the **sensors**, light detectors, and a processor. The **sensors** are exposed to a sample of the fluid of unknown composition The plurality of **sensors** include groups of **sensors**, each group targeting a specific **analyte** and including one or more **sensors** that contain an **analyte**-specific chemical that interacts more specifically with one **analyte** than with some other **analytes** to be analyzed. Each **sensor** in each group has a different chemical interacting specifically with the **analyte**. The light source shines light on the **sensors** of the plurality of **sensors** to cause light interaction with the **sensors**. The differences in the **sensors** lead to differences in the light interaction. The light detectors detect the light interaction by the **sensors**. The processor analyzes the light interaction by the **sensors** to take into account interference in light interaction among the **analytes**, thereby determining the concentration of each of the **analytes** in the fluid.

REFERENCE COUNT: 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 16 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:708417 CAPLUS
DOCUMENT NUMBER: 136:14863
TITLE: Array-to-array transfer of an artificial nose classifier
AUTHOR(S): Stitzel, Shannon E.; Cowen, Lenore J.; Albert, Keith J.; Walt, David R.
CORPORATE SOURCE: Max Tishler Laboratory for Organic Chemistry Department of Chemistry, Tufts University, Medford, MA, 02155, USA
SOURCE: Analytical Chemistry (2001), 73(21), 5266-5271
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English

AB This paper describes the use of a microsphere sensor technol. that allows simple fabrication of vapor sensor arrays with reproducible response patterns. Microsphere sensor fabrication protocols are uncomplicated and yield billions of highly reproducible sensors. Microsphere sensor arrays combined with a generalized Whitney-Mann-Wilcoxen (GWMW) classifier were used to discriminate between the presence and absence of nitroarom. compds. in high background vapor mixts. The classifier was trained on one sensor array and then used to obtain 98.2 and 93.7% correct classification rates with data collected using two subsequent arrays made up to six months after the initial training was performed. These results represent

an advance in the ability to transfer training data between multiple sensor arrays with a **fluorescence**-based artificial nose.
REFERENCE COUNT: 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 17 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2001:315865 CAPLUS
DOCUMENT NUMBER: 134:360802
TITLE: Optical multibead arrays for simple and complex odor discrimination
AUTHOR(S): Albert, Keith J.; Walt, David R.; Gill, Daljeet S.; Pearce, Tim C.
CORPORATE SOURCE: Max Tishler Laboratory for Organic Chemistry Department of Chemistry, Tufts University, Medford, MA, 02155, USA
SOURCE: Analytical Chemistry (2001), 73(11), 2501-2508
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A fiber optic bead-based sensor array platform was employed to discriminate between six different odors and air carrier gas. Six different bead sensor types, with over 250 replicates of each, were monitored before, during, and after odor exposure to produce time-dependent **fluorescence** response patterns that were unique for each sensor-analyte combination. A total of 2683 sensors were analyzed with respect to changes in their **fluorescence**, and signals from identical **sensor beads** were averaged to improve signal-to-noise ratios. Analyte classification rates of 100% were achieved for three complex (coffee bean) odors and three pure (simple) odors (toluene, acetone, 1,3-dinitrobenzene) measured at their highest relative concns. When lower odor concns. were employed, the system exhibited better than 85% classification rates for analyte discrimination. Sensor response repeatability to these odor stimuli also was quantified statistically, which is vital in defining the detection limit of the overall system. These results demonstrate, for the 1st time, the utility of the authors' bead array technol. for discriminating between different odor types at various dilution levels.
REFERENCE COUNT: 39 THERE ARE 39 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 18 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2002:44797 CAPLUS
DOCUMENT NUMBER: 136:357149
TITLE: Remote detection of nitroaromatic explosives in soil using distributed **sensor particles**
AUTHOR(S): Simonson, Robert Joseph; Hance, Bradley G.; Schmitt, Randal L.; Johnson, Mark S.; Hargis, Philip J., Jr.
CORPORATE SOURCE: Sandia National Laboratories, Albuquerque, NM, 87175, USA
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2001), 4394(Pt. 2, Detection and Remediation Technologies for Mines and Minelike Targets VI), 879-889
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Environmental fate and transport studies of explosives in soil indicate that 2,4,6-trinitrotoluene (TNT) and similar products such as dinitrotoluene (DNT) are major contributors to the trace chemical signature emanating from buried landmines. Chemical anal. methods are under development that have great potential to detect mines, or to rapidly

classify electromagnetically detected anomalies as mines vs. 'mine-like objects'. However, these chemical methods are currently confined to point sensors. In contrast, we have developed a method that can remotely determine the presence of nitroarom. explosives in surface soil. This method utilizes a novel distributed granular sensor approach in combination with UV-visible **fluorescence** LIDAR (Light Detection and Ranging) technol. We have produced prototype **sensor particles** that combine sample preconcn., explosives sensing, signal amplification, and optical signal output functions. These particles can be sprayed onto soil areas that are suspected of explosives contamination. By design, the **fluorescence** emission spectrum of the distributed particles is strongly affected by absorption of nitroarom. explosives from the surrounding environment. Using .apprx.1 mg/cm2 coverage of the **sensor particles** on natural soil, we have observed significant spectral changes due to TNT concns. in the ppm range (mg TNT/kg soil) on 2-in. diameter targets at a standoff distance of 0.5 km. These field measurements were also used to validate calcns. of **fluorescent** signal/noise for the granular **sensor particles** as a function of several variables, including particle and receiver characteristics, standoff range, pump laser characteristics, and particle coverage. Some implications of these measurements and calcns. for field deployment of the **sensor particles** are discussed.

REFERENCE COUNT: 13 THERE ARE 13 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 19 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 2001:693932 CAPLUS

DOCUMENT NUMBER: 136:275505

TITLE: Array biosensor for simultaneous detection of **multiple analytes**

AUTHOR(S): Ligler, Frances S.; Golden, Joel P.; Rowe-Taitt, Chris A.; Dodson, James P.

CORPORATE SOURCE: Center for Bio/Molecular, Science and Engineering, Naval Research Laboratory, USA

SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (2001), 4252(Advances in Fluorescence Sensing Technology V), 32-36
CODEN: PSISDG; ISSN: 0277-786X

PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The array biosensor has been developed for simultaneous anal. of multiple samples for **multiple analytes**. A patterned array of capture **antibodies** is immobilized on the surface of a planar waveguide and a sandwich immunoassay conducted using a cocktail of **fluorescent** tracer **antibodies**. Upon excitation of the **fluorescent** label using a 635 nm diode laser, a CCD camera detects the pattern of **fluorescent antigen**:**antibody** complexes on the **sensor** surface. Image anal. software correlates the position of **fluorescent** signals with the identity of the **analyte**. The assays are fast, sensitive, and specific. This immunosensor was use to detect physiol. relevant concns. of staphylococcal enterotoxin B (SEB), F1 **antigen** from Yersinia pestis, and D-dimer, a marker of sepsis and thrombotic disorders, in spiked clin. samples. Anal. of blind samples also demonstrated the capability of the **sensor** to analyze for bacteria, viruses, and **proteins** in simultaneous assays. Neither clin. fluids nor environmental contaminants create false positives or false negatives. A **sensor** prototype has been tested which includes a flow cell permanently mounted on the waveguide and a novel fluidics component milled in a plastic cube (1.5 cubic inches). With the miniaturization of the fluidics and electronics, the biosensor fits inside a 1.5 cubic foot case.

REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 20 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:814669 CAPLUS
DOCUMENT NUMBER: 133:346790
TITLE: Multiple tag analysis
INVENTOR(S): Lizardi, Paul M.; Latimer, Darin R.
PATENT ASSIGNEE(S): Yale University, USA
SOURCE: PCT Int. Appl., 96 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2000068434	A2	20001116	WO 2000-US12391	20000505
WO 2000068434	A3	20020131		
W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
CA 2371843	AA	20001116	CA 2000-2371843	20000505
EP 1196632	A2	20020417	EP 2000-930427	20000505
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO				
JP 2002543813	T2	20021224	JP 2000-617205	20000505

PRIORITY APPLN. INFO.:	US 1999-132969P	P	19990507
	WO 2000-US12391	W	20000505

AB Disclosed is a method of detecting **multiple analytes** in a sample in a single assay. The method is based on encoding target mols. with signals followed by decoding of the encoded signal. This encoding/decoding uncouples the detection of a target mol. from the chemical and phys. properties of the target mol. In basic form, the disclosed method involves association of one or more **reporter** mols. with one or more target samples, association of one or more decoding tags with the **reporter** mols., and detection of the decoding tags. The **reporter** mols. associate with target mols. in the target sample(s). Generally, the **reporter** mols. correspond to one or more target mols., and the decoding tags correspond to one or more **reporter** mols. Thus, detection of particular decoding tags indicates the presence of the corresponding **reporter** mols. In turn, the presence of particular **reporter** mols. indicates the presence of the corresponding target mols. The sensitivity of the disclosed method can also be enhanced by including a signal amplification step prior to detection. Medical applications of this method include the anal. of the phenotypic status or replicative status of cells (growth or quiescence) and the assessment of normal and neoplastic cells in histol. or cytol. specimens in normal and disease states. For example, a pathologist may use the method to link a phenotypic state with the **protein** profile of lesion believed to contain malignant or pre-malignant cells.

L12 ANSWER 21 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 2000:326995 CAPLUS
TITLE: Simultaneous analysis of **protein**, bacterial, and viral **antigens** using a flow cytometric

microarray immunosensor.
AUTHOR(S): Venkateswaran, Kodumudi S.; Langlois, Richard G.
CORPORATE SOURCE: Biology and]Biotechnology Research Program, Lawrence Livermore National Laboratory, Livermore, CA, 94551, USA
SOURCE: Book of Abstracts, 219th ACS National Meeting, San Francisco, CA, March 26-30, 2000 (2000), ANYL-201. American Chemical Society: Washington, D. C.
CODEN: 69CLAC
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English

AB **Multiple analyte** detection in a sample reduces the cost and time of the anal. Only few immunosensor formats are available for anal. of more than one **analyte** at the same time. We report here the development of a flow cytometric microarray immunosensor for concurrent detection and identification of **protein**, bacterial and viral **antigens**. Polystyrene spheres with distinct **fluorescence** properties were used as solid support for this flow microsphere immunoassay. **Antigen**-specific capture **antibodies** were covalently coupled to each set of optically encoded **fluorescent** microspheres. The test sample containing the **analytes** was incubated with a mixture of microspheres followed by **analyte**-specific **reporter fluorescent**-labeled **antibodies**. Multi-parametric flow cytometric anal. can distinguish each set of microspheres based on two different classifying **fluorescence** emission. Simultaneous measurement of the **reporter fluorescence** on the microspheres can reveal the presence or absence of **analyte**. This microarray immunosensor was used to simultaneously detect four simulants of biol. agents - **protein** toxin (Ovalbumin, Ov), bacillus spore (Bacillus globigii, Bg), vegetative bacteria (Erwinia herbicola, Eh) and bacteriophage MS2. Flow cytometric multiplex assay could detect concns. ranging over four orders of magnitude and was comparable to conventional single **analyte** immunoassay. This assay can be performed in a microtiter plate format in less than an hour. Hence flow cytometric microarray immunosensor is useful for large scale multiplexed immuno detection.

L12 ANSWER 22 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:181653 CAPLUS
DOCUMENT NUMBER: 130:204488
TITLE: Method and device for parallel analysis of **multiple analytes** in complex mixtures
INVENTOR(S): Weller, Michael G.; Niessner, Reinhard; Schuetz, Andreas; Winklmair, Michael
PATENT ASSIGNEE(S): Germany
SOURCE: Ger. Offen., 16 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 19736641	A1	19990311	DE 1997-19736641	19970822
PRIORITY APPLN. INFO.:			DE 1997-19736641	19970822

AB A process for simultaneous and parallel anal. of multiple components in fluids is characterized by: (1) a multi-channel detection by localized reaction with selected immobilized reagents, (2) a high scalability of the anal. systems, (3) binding mols. for the substrates (compds. to be analyzed) with variable specificities, (3) the reactions are carried out in one or several (maximum 10) compartments (e.g., in a sample array), in

which the maximum number of samples equals the number of compartments. Each sample
can then be analyzed by a different type of anal. (e.g., photochem., luminescence, etc.). The method can be incorporated into biol. assays (e.g., **antibodies** binding, ELISA, etc.) in which the binding mol. is immobilized on silanized glass.

L12 ANSWER 23 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:607362 CAPLUS
DOCUMENT NUMBER: 131:321210
TITLE: Immunoassay Readout Method Using Extrinsic Raman Labels Adsorbed on Immunogold Colloids
AUTHOR(S): Ni, Jing; Lipert, Robert J.; Dawson, G. Brent; Porter, Marc D.
CORPORATE SOURCE: Microanalytical Instrumentation Center, Ames Laboratory USDOE, Ames, IA, 50011, USA
SOURCE: Analytical Chemistry (1999), 71(21), 4903-4908
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB An immunoassay readout method based on surface-enhanced Raman scattering (SERS) is described. The method exploits the SERS-derived signal from **reporter** mols. that are coimmobilized with biospecific species on gold colloids. This concept is demonstrated in a dual-**analyte** sandwich assay, in which two different **antibodies** covalently bound to a solid substrate specifically capture two different **antigens** from an aqueous sample. The captured **antigens** in turn bind selectively to their corresponding detection **antibodies**. The detection **antibodies** are conjugated with gold colloids that are labeled with different Raman **reporter** mols., which serve as extrinsic labels for each type of **antibody**. The presence of a specific **antigen** is established by the characteristic SERS spectrum of the **reporter** mol. A near-IR diode laser was used to excite efficiently the SERS signal while minimizing **fluorescence** interference. We show that, by using different labels with little spectral overlap, two different antigenic species can be detected simultaneously. The potential of this concept to function as a readout strategy for **multiple analytes** is briefly discussed.
REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 24 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:539029 CAPLUS
DOCUMENT NUMBER: 131:283546
TITLE: **Multiple-Analyte** Fluoroimmunoassay Using an Integrated Optical Waveguide **Sensor**
AUTHOR(S): Plowman, T. E.; Durstchi, J. D.; Wang, H. K.; Christensen, D. A.; Herron, J. N.; Reichert, W. M.
CORPORATE SOURCE: Center for Emerging Cardiovascular Technologies Department of Biomedical Engineering, Duke University, Durham, NC, 27710, USA
SOURCE: Analytical Chemistry (1999), 71(19), 4344-4352
CODEN: ANCHAM; ISSN: 0003-2700
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A silicon oxynitride integrated optical waveguide was used to evanescently excite **fluorescence** from a multianalyte **sensor** surface in a rapid, sandwich immunoassay format. **Multiple analyte** immunoassay (MAIA) results for two sets of three different **analytes**, one employing polyclonal and the other monoclonal

capture **antibodies**, were compared with results for identical **analytes** performed in a single-**analyte** immunoassay (SAIA) format. The MAIA protocol was applied in both phosphate-buffered saline and simulated serum solns. Point-to-point correlation values between the MAIA and SAIA results varied widely for the polyclonal **antibodies** (R2 = 0.42-0.98) and were acceptable for the monoclonal **antibodies** (R2 = 0.93-0.99). Differences in calculated receptor affinities were also evident with polyclonal **antibodies**, but not so with monoclonal **antibodies**. Polyclonal **antibody** capture layers tended to demonstrate departure from ideal receptor-ligand binding while monoclonal **antibodies** generally displayed monovalent binding. A third set of three **antibodies**, specific for three cardiac **proteins** routinely used to categorize myocardial infarction, were also evaluated with the two assay protocols. MAIA responses, over clin. significant ranges for creatine kinase MB, cardiac troponin I, and myoglobin agreed well with responses generated with SAIA protocols (R2 = 0.97-0.99).

REFERENCE COUNT: 33 THERE ARE 33 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 25 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:455180 CAPLUS

DOCUMENT NUMBER: 131:254428

TITLE: Array Biosensor for Simultaneous Identification of Bacterial, Viral, and **Protein Analytes**

AUTHOR(S): Rowe, Chris A.; Tender, Leonard M.; Feldstein, Mark J.; Golden, Joel P.; Scruggs, Stephanie B.; MacCraith, Brian D.; Cras, John J.; Ligler, Frances S.

CORPORATE SOURCE: Center for Bio/Molecular Science Engineering, Naval Research Laboratory, Washington, DC, 20375-5348, USA

SOURCE: Analytical Chemistry (1999), 71(17), 3846-3852
CODEN: ANCHAM; ISSN: 0003-2700

PUBLISHER: American Chemical Society

DOCUMENT TYPE: Journal

LANGUAGE: English

AB The array biosensor was fabricated to analyze multiple samples simultaneously for **multiple analytes**. The **sensor** utilized a standard sandwich immunoassay format: **Antigen**-specific "capture" **antibodies** were immobilized in a patterned array on the surface of a planar waveguide and bound **analyte** was subsequently detected using **fluorescent** tracer **antibodies**. This study describes the anal. of 126 blind samples for the presence of three distinct classes of **analytes**. To address potential complications arising from using a mixture of tracer **antibodies** in the multianalyte assay, three single-**analyte** assays were run in parallel with a multianalyte assay. Mixts. of **analytes** were also assayed to demonstrate the **sensor**'s ability to detect more than a single species at a time. The array **sensor** was capable of detecting viral, bacterial, and **protein analytes** using a facile 14-min assay with sensitivity levels approaching those of standard ELISA methods. Limits of detection for Bacillus globigii, MS2 bacteriophage, and staphylococcal enterotoxin B (SEB) were 105 cfu/mL, 107 pfu/mL, and 10 ng/mL, resp. The array biosensor also analyzed multiple samples simultaneously and detected mixts. of the different types of **analytes** in the multianalyte format.

REFERENCE COUNT: 25 THERE ARE 25 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 26 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1999:365075 CAPLUS

DOCUMENT NUMBER: 131:211077

TITLE: Single-**analyte** to multianalyte **fluorescence sensors**
AUTHOR(S): Lavigne, John J.; Metzger, Axel; Niikura, Kenichi; Cabell, Larry A.; Savoy, Steven M.; Yoo, J. Seung-Jin; McDevitt, John Thomas; Neikirk, Dean P.; Shear, Jason B.; Anslyn, Eric V.
CORPORATE SOURCE: Dep. Chem. Biochem., Univ. Texas at Austin, Austin, TX, USA
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1999), 3602(Advances in Fluorescence Sensing Technology IV), 220-231
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English

AB A review, with many refs. The rational design of small mols. for the selective complexation of **analytes** has reached a level of sophistication such that there exists a high degree of prediction. An effective strategy for transforming these hosts into **sensors** involves covalently attaching a fluorophore to the receptor which displays some **fluorescence** modulation when **analyte** is bound. Competition methods, such as those used with **antibodies**, are also amenable to these synthetic receptors, yet there are few examples. In our labs., the use of common dyes in competition assays with small mols. has proven very effective. For example, an assay for citrate in beverages and an assay for the secondary messenger IP3 in cells have been developed. Another approach we have explored focuses on multi-**analyte sensor** arrays with attempt to mimic the mammalian sense of taste. Our system utilizes polymer resin beads with the desired **sensors** covalently attached. These functionalized microspheres are then immobilized into micromachined wells on a silicon chip thereby creating our taste buds. Exposure of the resin to **analyte** causes a change in the transmittance of the bead. This change can be **fluorescent** or colorimetric. Optical interrogation of the microspheres, by illuminating from one side of the wafer and collecting the signal on the other, results in an image. These data streams are collected using a CCD camera which creates red, green and blue (RGB) patterns that are distinct and reproducible for their environments. Anal. of this data can identify and quantify the **analytes** present.

REFERENCE COUNT: 113 THERE ARE 113 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 27 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1999:694153 CAPLUS
DOCUMENT NUMBER: 131:353272
TITLE: Multi-**analyte** explosive detection using a fiber optic biosensor
AUTHOR(S): Bakaltcheva, I. B.; Ligler, F. S.; Patterson, C. H.; Shriver-Lake, L. C.
CORPORATE SOURCE: Geo-Centers, Inc., Rockville, MD, 20852, USA
SOURCE: Analytica Chimica Acta (1999), 399(1-2), 13-20
CODEN: ACACAM; ISSN: 0003-2670
PUBLISHER: Elsevier Science B.V.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A fiber-optic immunosensor was developed for simultaneous detection of the most common explosives, TNT and RDX. The probe uses a competitive immunoassay on the **antibody**-coated fiber-optic probes, in which a **fluorescent antigen** competes with free **antigen** of unknown concentration for binding sites on the fiber surface. To achieve dual explosive detection, two **antigen**-based

(α-TNT) fiber probes and two **antigen**-based (α-RDX) fiber probes were connected in series. The sample was mixed with **fluorescent** analogs, Cy5-ethylenediamine-trinitrobenzene (Cy5-EDA-TNB) and Cy5-ethylenediamine-RDX hapten (Cy5-EDA-RDH). Inhibition of the maximum signal in the presence of the sample was proportional to the concentration of the explosive(s). The detection limits for the multi-**analyte** assays were equivalent (6 ng/mL for both TNT and RDX) to those of the individual assays (5 ng/mL for both TNT and RDX). The standard curves for TNT and RDX had a linear relationship between percent signal inhibition and the natural logarithm of **analyte** concentration in the multi-**analyte** format, as well as in single **analyte** assays, thus allowing a simple and precise method of quantification. There was minimal cross-reactivity for the two **antigens** in the multi-**analyte** immunosensor, so it was also an effective means in analyzing samples containing mixts. of RDX and TNT. The **sensor** has application in the monitoring of contaminated waste sites.

REFERENCE COUNT: 20 THERE ARE 20 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 28 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1998:485229 CAPLUS
DOCUMENT NUMBER: 129:106256
TITLE: Multiplexed molecular analysis apparatus and method
INVENTOR(S): Eggers, Mitchell D.; Balch, William J.; Hogan, Michael E.; Mendoza, Leopoldo G.
PATENT ASSIGNEE(S): Genometrix Inc., USA
SOURCE: PCT Int. Appl., 110 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9829736	A1	19980709	WO 1997-US24098	19971231
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
CA 2276462	AA	19980709	CA 1997-2276462	19971231
CA 2389358	AA	19980709	CA 1997-2389358	19971231
AU 9866463	A1	19980731	AU 1998-66463	19971231
EP 990142	A1	20000405	EP 1997-954992	19971231
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
US 6083763	A	20000704	US 1997-2170	19971231
JP 2001510339	T2	20010731	JP 1998-530285	19971231
EP 1249705	A2	20021016	EP 2002-13128	19971231
EP 1249705	A3	20031105		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
JP 2003107097	A2	20030409	JP 2002-179235	19971231
US 6331441	B1	20011218	US 1998-217154	19981221
US 6312960	B1	20011106	US 1998-218979	19981222
US 6803238	B1	20041012	US 1998-220536	19981224
US 6479301	B1	20021112	US 2000-679427	20001002
US 2004023249	A1	20040205	US 2002-316077	20021211

PRIORITY APPLN. INFO.:

US 1996-34627P	P 19961231
CA 1997-2276462	A3 19971231
EP 1997-954992	A3 19971231
JP 1998-530285	A3 19971231
US 1997-2170	A3 19971231
WO 1997-US24098	W 19971231
US 1998-217154	A3 19981221
US 1998-218979	A1 19981222
US 2000-625086	B1 20000725

AB A method and apparatus are disclosed for analyzing mol. structures within a sample substance using an array having a plurality of test sites upon which the sample substance is applied. The invention is also directed to a method and apparatus for constructing mol. arrays having a plurality of test sites. The invention allows for definitive high throughput anal. of **multiple analytes** in complex mixts. of sample substances. A combinatorial anal. process is described that results in the creation of an array of integrated chemical devices. These devices operate in parallel, each unit providing specific sets of data that, when taken as a whole, give a complete answer for a defined experiment This approach is uniquely capable of rapidly providing a high d. of information from limited amts. of sample in a cost-effective manner. Clean glass microscope cover slides were surface derivatized with 3-aminopropyltrimethoxysilane. A Hamilton 2200 Microlab robot was used to print a microarray of N-hydroxysuccinimide-activated haptens (digoxigenin, fluorescein, and biotin) on the glass substrate. To detect the immobilized haptens, the glass slides were rinsed and then incubated with streptavidin-horseradish peroxidase (HRP), anti-digoxigenin-HRP, and antifluorescein-HRP conjugates. The slides were imaged using chemiluminescent substrate (SuperSignal Substrate) and a proximal CCD detector.

REFERENCE COUNT: 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 29 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:113190 CAPLUS
DOCUMENT NUMBER: 128:200180
TITLE: A chiroptically enhanced **fluorescent** chemosensor
AUTHOR(S): Castagnetto, Jesus M.; Canary, James W.
CORPORATE SOURCE: Dep. Chem., New York Univ., New York, NY, 10003, USA
SOURCE: Chemical Communications (Cambridge) (1998), (2), 203-204
CODEN: CHCOFS; ISSN: 1359-7345
PUBLISHER: Royal Society of Chemistry
DOCUMENT TYPE: Journal
LANGUAGE: English

AB One **sensor** mol. gives both **fluorescence** and exciton-coupled CD signals upon **metal ion** complexation, suggesting a novel strategy for detection, identification and quantification of **multiple analytes**.

REFERENCE COUNT: 18 THERE ARE 18 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 30 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1998:524495 CAPLUS
TITLE: Multiple optochemical **analyte** sensing based on spectral discrination of sensing signals.
AUTHOR(S): Rosenzweig, Zeev; Jin, Ji
CORPORATE SOURCE: DEPARTMENT CHEMISTRY, UNIVERSITY NEW ORLEANS, New Orleans, LA, 70148, USA
SOURCE: Book of Abstracts, 216th ACS National Meeting, Boston, August 23-27 (1998), ANYL-059. American Chemical Society: Washington, D. C.

CODEN: 66KYA2
DOCUMENT TYPE: Conference; Meeting Abstract
LANGUAGE: English
AB Fiber optic **sensors** attract the attention of researchers because of their potential field use and remote detection capabilities. We have investigated the feasibility of **multiple analyte** sensing using fiber optic **fluorescence** microsensors where a single wavelength is used for excitation and **multiple analytes** are detected based on spectral discrimination between **analyte** related **fluorescence** signals. This report describes the fabrication and anal. properties of a microsensor with the capability to measure simultaneously the pH, calcium **ion**, and oxygen level in biol. fluids.

L12 ANSWER 31 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1997:610820 CAPLUS
DOCUMENT NUMBER: 127:259777
TITLE: Detection and discrimination of multiple amplification products in a single sample using **fluorescent** probes and multiplex fluorimetric analysis
INVENTOR(S): Glass, Michael J.; Coombs, Jana; Malmstrom, Sharon L.; Wu, Linxian
PATENT ASSIGNEE(S): Gull Laboratories, Inc., USA
SOURCE: Eur. Pat. Appl., 28 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 794261	A2	19970910	EP 1996-303496	19960517
EP 794261	A3	19970917		
R: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LI, LU, NL, PT, SE				
US 5723294	A	19980303	US 1996-613805	19960305
JP 09329549	A2	19971222	JP 1997-50436	19970305
US 5861256	A	19990119	US 1997-925444	19970908
PRIORITY APPLN. INFO.:			US 1996-613805 A	19960305

AB Methods and agents for detecting and discriminating **multiple analytes** within a test sample which are rapid, accurate, and convenient enough for routine use in a clin. laboratory The method detects PCR products by hybridization with probes labeled with **fluorescent reporter** groups with different probes labeled with different **reporters**.

L12 ANSWER 32 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1997:353016 CAPLUS
DOCUMENT NUMBER: 127:47327
TITLE: Development of optical fiber **sensor** probes for rapid remote in-situ spectroscopic measurements of biological samples
AUTHOR(S): Schulze, H. Georg; Greek, L. Shane; Blades, Michael W.; Bree, Alan V.; Gorzalka, Boris B.; Klein, Karl-Friedrich; Turner, Robin F. B.
CORPORATE SOURCE: Biotechnology Laboratory, The University of British Columbia, Vancouver, BC, V6T 1Z3, Can.
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1997), 2982(Optical Diagnostics of Biological Fluids and Advanced Techniques in Analytical Cytology), 251-262
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering

DOCUMENT TYPE: Journal
LANGUAGE: English

AB We have developed fiber-optic probes that facilitate rapid, simultaneous determination of **multiple analytes**, in situ, over a broad range of concns. Theor. and empirical methods were used to design and characterize prototype probes that comprise a single small-diameter excitation fiber and multiple larger diameter collection fibers for the optimal collection of side- and back-scattered or emitted light, depending on the sample characteristics. Prototypes were developed for use with pulsed ultra-violet resonance Raman spectroscopy, however, probes of this type are also suitable for use with other spectroscopic techniques such as **fluorescence**. Materials specifications, modeling methods, fabrication methods, and performance characteristics are described. Probes of our design are at present capable of measuring the aromatic amino acids in the 10 μM range and nM detection limits can be expected. We have also obtained UV Raman and resonance Raman spectra from **proteins**, **DNA**, amino acids, steroids, neurotransmitters, and alcs. with these probes.

REFERENCE COUNT: 19 THERE ARE 19 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L12 ANSWER 33 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:488802 CAPLUS
DOCUMENT NUMBER: 125:137243
TITLE: Immunoassay methods whereby multiple peptide or **nucleic acid analytes** can be detected, using differential timing and capture reagent for **analyte** immobilization
INVENTOR(S): Khalil, Omar S.; Hanley, Kathleen A.
PATENT ASSIGNEE(S): Abbott Laboratories, USA
SOURCE: PCT Int. Appl., 38 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 9619731	A2	19960627	WO 1995-US16464		19951218
WO 9619731	A3	19960919			
W: CA, JP					
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE					
CA 2207759	AA	19960627	CA 1995-2207759		19951218
EP 799421	A2	19971008	EP 1995-943861		19951218
EP 799421	B1	20030219			
R: AT, BE, CH, DE, ES, FR, GB, IT, LI, NL					
JP 10511460	T2	19981104	JP 1995-519921		19951218
AT 232981	E	20030315	AT 1995-943861		19951218
PRIORITY APPLN. INFO.:			US 1994-362036	A	19941222
			WO 1995-US16464	W	19951218

AB The instant investigation provides immunoassay methods whereby the presence of amount of **multiple analytes** that may be present in a test sample can be detected. According to one embodiment, the method comprises the steps of: (a) contacting a test sample with a common capture reagent for a time and under conditions sufficient to form capture reagent/**analyte** complexes wherein the common capture reagent includes one or more specific binding members that immobilize at least **analytes** that may be present in said test sample; (b) contacting the capture reagent/**analyte** complexes with at least two indicator reagents for a time and under conditions sufficient to form capture reagent/**analyte**/indicator reagent complexes; and (c) detecting at least two measureable signals as a measure of the presence or

amount of the **analytes** in the test sample. Indicator reagents which are employed in the above embodiment can comprise detectable moieties from at least two distinct detectable moiety classes. The invention also applies to detecting multiple **nucleic acid** acid sequences which may be present in a test sample.

L12 ANSWER 34 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:305216 CAPLUS
DOCUMENT NUMBER: 125:29497
TITLE: Patterning **antibodies** for a **multiple analyte sensor** via photodeprotection chemistry
AUTHOR(S): Blawas, A. S.; Huang, C.-Y.; Pirrung, M. C.; Reichert, W.M.
CORPORATE SOURCE: Department of Biomedical Engineering, Duke University, USA
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1996), 2680(Ultrasensitive Biochemical Diagnostics), 68-77
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English

AB In order to maximize the applications of advanced optical techniques for immunoassay it is critical that one can analyze **multiple analytes** simultaneously. One method of creating a **multiple analyte sensor** is to pattern **antibodies** against ligands of interest onto distinct regions of a single wave guide for **fluorescence** immunoassay. To achieve **protein** patterning, we are using a photolabile protected biotin with the caging moiety MeNPOC, (Me nitropiprionyloxy carbonyl). The biotin mols. within a given region are selectively deprotected by exposure to UV light and subsequently bound to streptavidin. Incubation with a biotinylated **antibody** results in a functionalized region on the surface. This paper characterizes the method for immobilizing caged biotin onto the wave guide surface. Two surface biotinylation methods were examined silane coupling via aminpropyl triethoxy silane to a biotin-MeNPOC ester, and adsorption of biotin-MeNPOC conjugated bovine serum albumin. Using an I-125 label, **protein** surface densities have been determined for streptavidin bound to protected and deprotected surfaces. In addition, the duration of ultra-violet light exposure was evaluated to assess the ultimate effect on bound **protein**. The ability of an **antibody** bound within a patterned region to detect its corresponding **analyte** was determined

L12 ANSWER 35 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1996:305214 CAPLUS
DOCUMENT NUMBER: 125:29408
TITLE: Determination of **multiple analytes** using a fiber optic biosensor based on **fluorescence** energy transfer
AUTHOR(S): Thompson, Richard B.; Ge, Zhengfeng; Patchan, Marcia W.; Fierke, Carol A.; McCall, Keith A.; Elbaum, Daniel; Christianson, David W.
CORPORATE SOURCE: School of Medicine, University of Maryland, Baltimore, MD, 21201, USA
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1996), 2680(Ultrasensitive Biochemical Diagnostics), 47-56
CODEN: PSISDG; ISSN: 0277-786X
PUBLISHER: SPIE-The International Society for Optical Engineering
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Recently, we have developed a biosensor for zinc based on the very tight binding of this **metal** by the enzyme carbonic anhydrase, which requires Zn(II) for catalysis. We were able to transduce the binding of the **metal** as a change in **fluorescence** intensity or lifetime by use of a colored inhibitor whose **metal**-dependent binding permits **fluorescence** resonance energy transfer (Forster transfer) to occur. We have extended this concept to include other **metals** and other **analytes** which may be bound in the native (or mutant) enzyme active site with a concomitant color change; the color change is transduced as a change in energy transfer efficiency. We have also recently demonstrated a similar approach, wherein the presence of a **metal ion** in the binding site is transduced as a change in **fluorescence** anisotropy. Results in cuvettes and with fiber optic **sensors** will be shown.

L12 ANSWER 36 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:318835 CAPLUS
DOCUMENT NUMBER: 120:318835
TITLE: Up-converting **reporters** for biological and other assays using laser excitation techniques
INVENTOR(S): Zarling, David A.; Rossi, Michel J.; Peppers, Norman A.; Kane, James; Faris, Gregory W.; Dyer, Mark J.
PATENT ASSIGNEE(S): SRI International, USA
SOURCE: PCT Int. Appl., 116 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 3
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9407142	A1	19940331	WO 1993-US8712	19930914
W: CA, JP, KR				
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
EP 660936	A1	19950705	EP 1993-921595	19930914
EP 660936	B1	19980819		
R: AT, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE				
JP 08501632	T2	19960220	JP 1994-508282	19930914
JP 3420765	B2	20030630		
EP 723146	A1	19960724	EP 1996-200682	19930914
EP 723146	B1	20040506		
R: AT, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE				
AT 170004	E	19980915	AT 1993-921595	19930914
ES 2123063	T3	19990101	ES 1993-921595	19930914
EP 1333274	A2	20030806	EP 2003-10101	19930914
EP 1333274	A3	20031022		
R: AT, CH, DE, DK, ES, FR, GB, IT, LI, NL, SE				
AT 266195	E	20040515	AT 1996-200682	19930914
ES 2216034	T3	20041016	ES 1996-200682	19930914
JP 2003177096	A2	20030627	JP 2002-306847	20021022
JP 3636705	B2	20050406		
JP 2005104980	A2	20050421	JP 2004-278564	20040924

PRIORITY APPLN. INFO.:

US 1992-946068	A	19920914
EP 1993-921595	A3	19930914
JP 1994-508282	A3	19930914
WO 1993-US8712	W	19930914
EP 1996-200682	A3	19960313
JP 2002-306847	A3	20021022

AB The invention provides methods, compns., and apparatus for performing sensitive detection of biol. macromols. (polynucleotides, polypeptides, microorganisms, etc.) and other **analytes** by labeling a probe mol. with an up-converting label. The up-converting label absorbs

radiation from an illumination source and emits radiation at one or more higher frequencies, providing enhanced signal-to-noise ratio and the essential elimination of background sample autofluorescence. The methods, compns., and apparatus are suitable for the sensitive detection of **multiple analytes** and for various clin. and environmental sampling techniques. Validation of up-converting inorg. phosphors as **reporters**, phosphor particle performance, immunodiagnostic sample detection, linkage of an avidin phosphor conjugate to **DNA**, etc. are described. Apparatus diagrams are included. A composition of a **fluorescent** dye attached to an up-converting phosphor to be used for photodynamic therapy is also claimed.

L12 ANSWER 37 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1994:675655 CAPLUS
DOCUMENT NUMBER: 121:275655
TITLE: Large area waveguide **sensor** for **multiple analytes** detection
AUTHOR(S): Ho, Z. Z.; Low, Peter; Robinson, Dan
CORPORATE SOURCE: Applied Technology Division, Physical Optics Corporation, Torrance, CA, 90505, USA
SOURCE: Proceedings of SPIE-The International Society for Optical Engineering (1994), 2136(BIOCHEMICAL DIAGNOSTIC INSTRUMENTATION), 344-51
CODEN: PSISDG; ISSN: 0277-786X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A highly sensitive fluoroimmunoassay optical waveguide for the monitoring of biol. agents was developed. The scope and versatility of this method was enhanced by combining the principle of fluoroimmunoassay with latex-based waveguide evanescent wave sensing technol. A novel waveguide probe was successfully demonstrated as an **antibody**-based biosensor. Based on a designed biol. model, human IgG (h-IgG) were sensitively (0.3 ng/mL, 2 + 10-12 M) and rapidly (2 min assay time) identified and quantified using a diode laser (635 nm). The latex-based thin film has excellent optical quality and an established immunochem., making it stable and reliable for sensing applications. Because polymer-matrix waveguide is inexpensive and disposable, the probe cartridge is suitable for one time assay. Very fast and highly sensitive biosensors are potentially useful for many medical and clin. diagnostics, especially for intensive or emergency care patients.

L12 ANSWER 38 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN
ACCESSION NUMBER: 1993:644955 CAPLUS
DOCUMENT NUMBER: 119:244955
TITLE: Imaging fiber-optic array **sensors**, apparatus, and methods for concurrently detecting **multiple analytes** of interest in a fluid sample
INVENTOR(S): Walt, David R.; Barnard, Steven M.
PATENT ASSIGNEE(S): Trustees of Tufts College, USA
SOURCE: U.S., 37 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 4
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5244636	A	19930914	US 1991-645787	19910125
US 5244813	A	19930914	US 1992-870949	19920420
US 5320814	A	19940614	US 1992-981884	19921125
US 5250264	A	19931005	US 1992-994552	19921221

PRIORITY APPLN. INFO.: US 1991-645787 A2 19910125

AB A fiber-optic **sensor** is disclosed which is able to conduct multiple assays concurrently using a plurality of different dyes immobilized at individual spatial positions on the surface of the **sensor**. Also provided are an apparatus for making precise optical detns. and measurements for **multiple analytes** of interest concurrently and methods of detection for **multiple analytes** of interest which can be correlated with specific parameters or other ligands for specific applications and purposes. A fiber-optic **sensor** for concurrent measurement of pH and oxygen is described which contains both a photopolymd. fluorescein dye at 1 precise spatial position and a photopolymd. ruthenium dye at a 2nd precise spatial position on the distal optic array surface of the **sensor** . A **sensor** for pH and CO2 concentration is also described.

L12 ANSWER 39 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1986:145093 CAPLUS
DOCUMENT NUMBER: 104:145093
TITLE: Optical sensor with beads
INVENTOR(S): Heitzmann, Harold A.
PATENT ASSIGNEE(S): Cardiovascular Devices, Inc., USA
SOURCE: U.S., 6 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4557900	A	19851210	US 1982-425420	19820928

PRIORITY APPLN. INFO.: US 1982-425420 19820928

AB An optical sensor is described which consists of a selectively permeable matrix of hydrophobic material (e.g., silicone) and a number of beads of hydrophilic material (e.g., polyacrylamide) dispersed in the matrix. Some of the beads carry an optical indicator, and the matrix is capable of transmitting light at selected wavelengths from outside the matrix to the beads. For example, the title sensor can be used for determination of the partial pressure of blood gases. The optical indicator carried by the beads is capable of responding to partial pressure of the gas. When light is transmitted through matrix to the indicator at an appropriate wavelength, the indicator responds to the light to provide an optical signal which is related to the partial pressure of the gas.

L12 ANSWER 40 OF 40 CAPLUS COPYRIGHT 2005 ACS on STN

ACCESSION NUMBER: 1967:455422 CAPLUS
DOCUMENT NUMBER: 67:55422
TITLE: An "on-stream" x-ray particle-size sensor
AUTHOR(S): Carr-Brion Kenneth G.; Mitchell, P. J.
CORPORATE SOURCE: Warren Spring Lab., Stevenage, UK
SOURCE: Journal of Scientific Instruments (1967), 44(8), 611-14
CODEN: JSINAY; ISSN: 0368-4253
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A particle-size sensor has been developed to correct for particle-size effects in the x-ray **fluorescence** analysis of slurries. It uses the absorption of x-rays of different energies and gives an output independent of flow rate or solid concentration Its performance is briefly examined and a method of reducing its dependence on solid composition suggested.